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EXAMINER	
OJURONGBE, OLATUNDE S	

ART UNIT	PAPER NUMBER
1796	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/583,463	KIUCHI ET AL.	
	Examiner	Art Unit	
	OLATUNDE S. OJURONGBE	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 July 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The amendment filed July 30th, 2008 has been entered. Claims 1-20 remain pending in the application.

Claim Rejections - 35 USC § 103

.2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior office action.

3. **Claims 1-5 and 11** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Yamada et al (JP 2003-192925, see US 2005/0143502 for English Language equivalent)**.

Regarding **claims 1 and 5**, Yamada et al discloses a flame-retardant [0001, lines 1-2] thermoplastic resin composition [see composition and aliphatic polyester, 0014, lines 1-4] comprising: at least a resin (A) [see polylactic acid, 0015, lines 1-3] and a flame retardant (B) [0018, lines 1-4], wherein the weight proportions of the individual components in the flame-retardant thermoplastic resin composition are:

$30 = <W_1 < 55.5$ [see 48, Polylactic acid, example 16, Table 5, 0099]

$44.5 < X1 =< 70$ [see 50, Aluminum hydroxide, example 16, Table 5, 0099]

wherein W_1 is the percentage by mass of the resin (A) [see Polylactic acid, example 16, Table 5, 0099] and X_1 is the percentage by mass of the flame retardant (B) [see Aluminum hydroxide, example 16, Table 5, 0099], and 90% by mass or more of the flame retardant (B) is composed of a metal hydrate[see hydroxide compound having a purity of 99.5% or more, 0018, lines 1-4 and aluminum hydroxide 0045, lines 15-16] containing an alkali metal-based substance [see T-Na_2O and S-Na_2O, 0045, line 14].

In example 16, Table 5, Yamada et al discloses a composition comprising 48 parts by weight of polylactic acid and 50 parts by weight of aluminum hydroxide, these values anticipate 30 =< W1< 55.5 and 44.5 < X_1< 70 of the instant claim respectively.

Though Yamada et al does not explicitly disclose the metal hydrate (aluminum hydroxide) containing the alkali metal based substance (T-Na_2O and S-Na_2O) in an amount of 0.2% by mass or less, Yamada et al further discloses the alkali metal based substance (T-Na_2O and S-Na_2O) as impurity contained in the metal hydrate [0045, lines 12-14] and that the purity of the metal hydrate (hydroxide compound) is preferably about 99.5% or more [0045, lines 1-3], which makes the amount of alkali metal based substance contained in the metal hydrate about 0.5% or less.

According to Yamada et al, a purity of about 99.5% is preferred for the metal hydrate (hydroxide compound) because the shelf stability of the metal hydrate is improved with a higher purity of the metal hydrate [0045, lines 1-5]; hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to have purified the metal hydrate thereby reducing the amount of alkali metal based substance contained in the metal hydrate in order to have an improved shelf stability of the metal hydrate.

The amount of alkali metal based substance contained in the metal hydrate of the flame retardant thermoplastic resin composition is not considered to confer patentability to the claim, as the purity, shelf stability and cost of purification of the metal hydrate are variables that can be modified, among others, by adjusting said amount of alkali metal based substance contained in the metal hydrate, with said purity, shelf stability and cost of purification of the metal hydrate increasing as the amount of alkali metal based

substance (impurity) removed from the metal hydrate increases, hence, the amount of alkali metal based substance contained in the metal hydrate decreases; the precise amount of alkali metal based substance contained in the metal hydrate would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the claimed amount of alkali metal based substance contained in the metal hydrate cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the amount of alkali metal based substance contained in the metal hydrate of the flame-retardant thermoplastic resin composition of Yamada et al to obtain the desired balance between purification cost and the shelf stability of the metal hydrate (In re Boesch, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (In re Aller, 105 USPQ 223).

Though modified Yamada et al does not disclose that the resin (A) is a plant-derived resin, this limitation is a product by process limitation and the examiner notes that even though a product-by-process is defined by the process steps by which the product is made, determination of patentability is based on the product itself. In re Thorpe, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). As the court stated in Thorpe, 777 F.2d at 697, 227 USPQ at 966 (The patentability of a product does not depend on its method of production. In re Pilkington, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969).

If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.).

Regarding **claims 2, 4, 9 and 11**, Yamada et al discloses a flame-retardant [0001, lines 1-2] thermoplastic resin composition[see composition and aliphatic polyester, 0014, lines 1-4] comprising: at least a resin (A) [see polylactic acid, 0015, lines 1-3], a flame retardant (B) [0018, lines 1-4] and an aromatic ring-containing compound (C) [see bisphenol A, 0041, line 3], wherein the weight proportions of the individual components in the flame-retardant thermoplastic resin composition are:

$25 = < W_2 < 55.5$ [see 48, Polylactic, example 16, Table 5, 0099]

$39.5 = < X_2 = < 70$ [see 50, Aluminum hydroxide, example 16, Table 5, 0099]

$10 < Y < 35$ [see bisphenol A, 0041, line 3 and silica compound, 0048, lines 14-17], wherein W_2 is the percentage by mass of the resin (A) [see 48, Polylactic, example 16, Table 5, 0099], X_2 is the percentage by mass of the flame retardant (B) [see 50, Aluminum hydroxide, example 16, Table 5, 0099], and Y is the percentage by mass of the aromatic ring- containing compound (C) [see bisphenol A, 0041, line 3 and silica compound, 0048, lines 14-17] and 90% by mass or more of the flame retardant (B) is composed of a metal hydrate[see hydroxide compound having a purity of 99.5% or more, 0018, lines 1-4 and aluminum hydroxide 0045, lines 15-16] containing an alkali metal-based substance [see T-Na_2O and S-Na_2O, 0045, line 14].

In example 16, Table 5, Yamada et al discloses a composition comprising 48 parts by weight of polylactic acid and 50 parts by weight of aluminum hydroxide, these values anticipate 30 = <W_2< 55.5 and 44.5 < X_2<70 of the instant claim respectively. Yamada et al discloses that one or more flame retardant additives can be used in the invention [0035, lines 1-10].

Though Yamada et al does not disclose the resin composition comprising the bisphenol A in a disclosed amount, Yamada et al further discloses silica and bisphenol A as equivalents [see examples of organic flame retardant compounds, 0041, lines 1-6] and the weight proportion of silica in the resin composition [0048, lines 14-17]; since silica and bisphenol A are equivalents, one of ordinary skill in the art would have used either silica or bisphenol A in the disclosed weight proportion [10 to 35%, 0048, lines 14-17] in the thermoplastic resin composition of Yamada et al; such combination would have amount to nothing more than the use of a known element for its intended use in a known environment to accomplish entirely expected result.

Bisphenol A is an aromatic ring containing compound with two phenol.

However, modified Yamada et al does not disclose the weight proportion of the aromatic ring containing compound (C) (bisphenol A) in the flame-retardant thermoplastic resin composition as 0.5 = <Y=< 20; wherein Y is the percentage by mass of the aromatic ring containing compound (C).

Modified Yamada et al further discloses that the mechanical strength of the flame retardant thermoplastic resin composition is affected by the amount of the flame retardant additive, including bisphenol A, added to the composition [0048, lines 1-4],

therefore, the weight proportion of the aromatic ring containing compound (c) (bisphenol A) is not considered to confer patentability to the claims; as the strength of the resin composition is a variable that can be modified, among others, by adjusting said weight proportion of the aromatic ring containing compound (C) in the resin composition, with said strength of the resin composition increasing as the amount of the aromatic ring containing compound (C) decreases; the precise weight proportion of the aromatic ring containing compound (C) would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the claimed weight proportion of the aromatic ring containing compound (C) cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the weight proportion of the aromatic ring containing compound (C) in the flame retardant thermoplastic resin composition of modified Yamada et al to obtain the desired strength of the flame retardant thermoplastic resin composition (In re Boesch, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (In re Aller, 105 USPQ 223).

Though modified Yamada et al does not explicitly disclose the metal hydrate (aluminum hydroxide) containing the alkali metal based substance (T-Na_2O and S-Na_2O) in an amount of 0.2% by mass or less, modified Yamada et al further discloses the alkali metal based substance (T-Na_2O and S-Na_2O) as impurity contained in the

metal hydrate [0045, lines 12-14] and that the purity of the metal hydrate (hydroxide compound) is preferably about 99.5% or more [0045, lines 1-3], which makes the amount of alkali metal based substance contained in the metal hydrate about 0.5% or less.

According to modified Yamada et al, a purity of about 99.5% is preferred for the metal hydrate (hydroxide compound) because the shelf stability of the metal hydrate is improved with a higher purity of the metal hydrate [0045, lines 1-5]; hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to have purified the metal hydrate thereby reducing the amount of alkali metal based substance contained in the metal hydrate in order to improve the shelf stability of the metal hydrate.

The amount of alkali metal based substance contained in the metal hydrate of the flame retardant thermoplastic resin composition is not considered to confer patentability to the claim; as the purity, shelf stability and cost of purification of the metal hydrate are variables that can be modified, among others, by adjusting said amount of alkali metal based substance contained in the metal hydrate, with said purity, shelf stability and cost of purification of the metal hydrate increasing as the amount of alkali metal based substance (impurity) removed from the metal hydrate increases, hence, the amount of alkali metal based substance contained in the metal hydrate decreases; the precise amount of alkali metal based substance contained in the metal hydrate would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the

claimed amount of alkali metal based substance contained in the metal hydrate cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the amount of alkali metal based substance contained in the metal hydrate of the flame retardant thermoplastic resin composition of modified Yamada et al to obtain the desired balance between purification cost and the shelf stability of the metal hydrate (In re Boesch, 617 F.2d. 272,205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (In re Aller, 105 USPQ 223). Though modified Yamada et al does not disclose that the resin (A) is a plant- derived resin, this limitation is a product by process limitation and the examiner notes that even though a product-by-process is defined by the process steps by which the product is made, determination of patentability is based on the product itself. In re Thorpe, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). As the court stated in Thorpe, 777 F.2d at 697, 227 USPQ at 966 (The patentability of a product does not depend on its method of production. In re Pilkington, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969). If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.).

Regarding **claims 3, 8 and 10**, Yamada et al discloses a flame-retardant [0001, lines 1-2] thermoplastic resin composition[see composition and aliphatic polyester, 0014,

lines 1-4] comprising at least a resin (A) [see polylactic acid, 0015, lines 1-3], a flame retardant (B) [0018, lines 1-4], an aromatic ring-containing compound (C) [see bisphenol A, 0041, line 3] and a nucleating agent (D) [see compounds containing phosphorus, 0037, lines 1-18] wherein the weight proportions of the individual components in the flame-retardant thermoplastic resin composition are:

$25 =< W_3 < 55.5$ [see 48, Polylactic, example 16, Table 5, 0099]

$29.5 = < X_3 =< 70$ [see 50, Aluminum hydroxide, example 16, Table 5, 0099]

$10< Y < 35$ [see bisphenol A, 0041, line 3 and silica compound, 0048, lines 14-17].

And $2 =< Z =< 20$ [see compounds containing phosphorus, 0037, lines 1-18 and ammonium polyphosphate, 0048, lines 9-13].

wherein W_3 is the percentage by mass of the resin (A) [see 48, Polylactic, example 16, Table 5, 0099], X_3 is the percentage by mass of the flame retardant (B) [see 50, Aluminum hydroxide, example 16, Table 5, 0099], Y is the percentage by mass of the aromatic ring- containing compound (C) [see bisphenol A, 0041, line 3 and silica compound, 0048, lines 14-17] and Z is the percentage by mass of the nucleating agent (D) [see compounds containing phosphorus, 0037, lines 1-18 and ammonium polyphosphate, 0048, lines 9-13], and 90% by mass or more of the flame retardant (B) is composed of a metal hydrate[see hydroxide compound having a purity of 99.5% or more, 0018, lines 1-4 and aluminum hydroxide 0045, lines 15-16] containing an alkali metal-based substance [see T-Na_2O and S-Na_2O, 0045, line 14].

In example 16, Table 5, Yamada et al discloses a composition comprising 48 parts by weight of polylactic acid and 50 parts by weight of aluminum hydroxide, these values anticipate $30 = < W_3 < 55.5$ and $44.5 < X_3 < 70$ of the instant claim respectively.

Though Yamada et al does not explicitly disclose the compounds containing phosphorous as nucleating agents, since the instant application discloses organic compounds of phosphorus acid and phosphoric acid as nucleating agents [instant specification 0050, lines 55-56], then phosphoric esters, tris(chloroethyl)phosphate and other organic compounds of phosphorus acid and phosphoric acid as disclosed by Yamada et al [0037, lines 1-18] act as nucleating agents in the flame retardant thermoplastic resin composition of Yamada et al, as a chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Though Yamada et al does not disclose the thermoplastic resin composition comprising the bisphenol A in a disclosed amount, Yamada et al further discloses silica and bisphenol A as equivalents [see examples of organic flame retardant compounds, 0041, lines 1-6]; and the weight proportion of silica in the thermoplastic resin composition [0048, lines 14-17]. Since silica and bisphenol A are equivalents, one of ordinary skill in the art would have used either silica or bisphenol A in the disclosed weight proportion [10 to 35%, 0048, lines 14-17] in the thermoplastic resin composition of Yamada et al; such combination would have amount to nothing more than the use of

a known element for its intended use in a known environment to accomplish entirely expected result.

Though modified Yamada et al does not disclose the flame resistant thermoplastic resin composition comprising organic compounds of phosphorous and phosphoric acid in a disclosed amount, modified Yamada et al further discloses ammonium polyphosphate and various organic compounds of phosphorus acid and phosphoric acid as equivalents [0037, lines 3 and lines 10-11]; and the weight proportion of ammonium polyphosphate in the thermoplastic resin [0048, lines 9-13], one of ordinary skill in the art would have used ammonium polyphosphate or any of the organic compounds of phosphorus acid and/or phosphoric acid in the disclosed weight proportion [2 to 20%, 0048, lines 9-13] in the thermoplastic resin composition of modified Yamada et al; such combination would have amount to nothing more than the use of a known element for its intended use in a known environment to accomplish entirely expected result.

Though modified Yamada et al does not disclose the fire retardant thermoplastic resin composition comprising an aromatic ring containing compound (C) in the weight proportion of $0.5 =< Y =< 20$ and the nucleating agent (D) in the weight proportion of $0.05 < Z < 20$, Wherein Y is the percentage by mass of the aromatic containing compound (C) and Z is the percentage by mass of the nucleating agent (D); modified Yamada et al further discloses that the mechanical strength of the flame retardant thermoplastic resin composition is affected by the amount of the flame retardant additive, including bisphenol A and organic compounds of phosphorous and/or phosphoric acid, added to the composition [0048, lines 1-4].

The weight proportion of the bisphenol A (aromatic ring containing compound (c)) and the organic compound of phosphorous acid and/or phosphoric acid (nucleating agent (D)) in the flame retardant thermoplastic resin composition are not considered to confer patentability to the claim; as the strength of the resin composition is a variable that can be modified, among others, by adjusting said weight proportion of the bisphenol A (aromatic ring containing compound (C)) and the organic compound of phosphorous acid and/or phosphoric acid (nucleating agent (D) in the thermoplastic resin composition, with said strength of the flame resistant thermoplastic resin composition increasing as the amount of the bisphenol A (aromatic ring containing compound (C)) and organic compound of phosphorous acid and/or phosphoric acid (nucleating agent (D)) decreases; the precise weight proportion of the bisphenol A (aromatic ring containing compound (C)) and the organic compound of phosphorous acid and/or phosphoric acid (nucleating agent (d)) would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the claimed weight proportion of the bisphenol A (aromatic ring containing compound (C)) and the organic compound of phosphorous acid and/or phosphoric acid (nucleating agent (D)) cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the weight proportion of the bisphenol A (aromatic ring containing compound (C)) and organic compound of phosphorous acid and/or phosphoric acid (nucleating agent (D)) in the flame resistant thermoplastic resin composition of modified Yamada et al to obtain the desired strength

of the resin composition (In re Boesch, 617 F.2d. 272,205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (In re Aller, 105 USPQ 223).

Though modified Yamada et al does not explicitly disclose the metal hydrate (aluminum hydroxide) containing the alkali metal based substance (T-Na_2O and S- Na_2O) in an amount of 0.2% by mass or less, Yamada et al further discloses the alkali metal based substance (T-Na_2O and S-Na_2O) as impurity contained in the metal hydrate [0045, lines 12-14] and that the purity of the metal hydrate (hydroxide compound) is preferably about 99.5% or more [0045, lines 1-3], which makes the amount of alkali metal based substance contained in the metal hydrate about 0.5% or less.

According to modified Yamada et al, a purity of about 99.5% is preferred for the metal hydrate (hydroxide compound) because the shelf stability of the metal hydrate is improved with a higher purity of the metal hydrate [0045, lines 1-5]; hence it would have been obvious to one of ordinary skill in the art at the time the invention was made to have purified the metal hydrate thereby reducing the amount of alkali metal based substance contained in the metal hydrate in order to have improved shelf stability of the flame retardant thermoplastic resin composition.

The amount of alkali metal based substance contained in the metal hydrate is not considered to confer patentability to the claims; as the purity, shelf stability and cost of purification of the metal hydrate are variables that can be modified, among others, by adjusting said amount of alkali metal based substance contained in the metal hydrate of

the flame retardant thermoplastic resin composition, with said purity, shelf stability and cost of purification of the metal hydrate increasing as the amount of alkali metal based substance (impurity) removed from the metal hydrate increases, hence, the amount of alkali metal based substance contained in the metal hydrate decreases; the precise amount of alkali metal based substance contained in the metal hydrate would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the claimed amount of alkali metal based substance contained in the metal hydrate of the flame retardant thermoplastic resin composition cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the amount of alkali metal based substance contained in the metal hydrate of the flame retardant thermoplastic resin composition of Yamada et al to obtain the desired balance between purification cost and the shelf stability of the metal hydrate (In re Boesch, 617 F.2d. 272,205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (In re Aller, 105 USPQ 223).

Though modified Yamada et al does not disclose that the resin (A) is a plant- derived resin, this limitation is a product by process limitation and the examiner notes that even though a product-by-process is defined by the process steps by which the product is made, determination of patentability is based on the product itself. In re Thorpe, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). As the court stated in Thorpe, 777 F.2d at

697, 227 USPQ at 966 (The patentability of a product does not depend on its method of production. In re Pilkington, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969). If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.).

4. **Claims 6 and 12-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Yamada et al (JP 2003-192925, see US 2005/0143502 for English Language equivalent)** as applied to claims 1-5 respectively, in view of **Honda et al (WO/2002/090440, see US 2004/0143068 for English Language equivalent).**

Regarding **claims 6 and 12-15**, modified Yamada et al discloses all the claim limitations as set forth above and further discloses the flame-retardant thermoplastic resin composition, further comprising a drip-proof agent (E) (see Teflon, 0059, line 11). Teflon is a registered trademark for polytetrafluoroethylene.

Though modified Yamada et al does not disclose the polytetrafluoroethylene (Teflon) as a drip-proof agent; since polytetrafluoroethylene is disclosed in the instant application as a drip-proof agent [see instant application,0055, lines 1-6], then Teflon (polytetrafluroethylene) acts as a drip-proof agent in the invention of modified Yamada et al, because a chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present, In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Though modified Yamada et al does not disclose the drip-proof agent (E) in a weight proportion of 1% by mass or less to the total weight of the flame-retardant thermoplastic resin composition, modified Yamada et al further discloses that additives, including Teflon (polytetrafluoroethylene) can be added to the thermoplastic resin composition in an amount such that the desired effect of the composition of the invention is not sacrificed [0058, lines 1-4]. It is known in the art, as evidenced by Honda et al, that polytetrafluoroethylene has poor compatibility with thermoplastic resins, and it is difficult to uniformly disperse polytetrafluoroethylene in thermoplastic resins as an aggregate tends to be formed when polytetrafluroethylene is dispersed in thermoplastic resins. The aggregate of polytetrafluoroethylene causes poor appearance and decreases the mechanical properties such as impact resistance of the thermoplastic resin composition [Honda et al, 0005, lines 1-14].

The weight proportion of the polytetrafluoroethylene (drip-proof agent) is not considered to confer patentability to the claims; as the impact resistance of the flame retardant thermoplastic resin composition is a variable that can be modified, among others, by adjusting said weight proportion of the polytetrafluoroethylene (drip-proof agent), with said impact resistance of the flame retardant thermoplastic resin decreasing as the weight proportion of the polytetrafluroethylene (drip-proof agent) increases, the precise weight proportion of the polytetrafluroethylene (drip-proof agent) would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the claimed weight proportion of the polytetrafluoroethylene (drip-proof agent) cannot be considered

critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the weight proportion of the polytetrafluoroethylene (drip-proof agent) in the flame retardant thermoplastic resin composition of modified Yamada et al to obtain the desired impact resistance of the flame retardant thermoplastic resin composition (In re Boesch, 617 F.2d. 272,205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (In re Aller, 105 USPQ 223).

5. **Claims 7 and 16-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Yamada et al (JP 2003-192925, see US 2005/0143502 for English Language equivalent)** as applied to claims 1-5 above, in view of **Fujihana et al (WO 01/79354, see US 7,192,538 for English Language equivalent)**.

Regarding **claims 7 and16-19**, modified Yamada et al discloses all the claim limitations as set forth above and further discloses the flame-retardant thermoplastic resin, further comprising a high-strength fiber (F) [see carbon fiber, 0059, line 2]. Though modified Yamada et al does not disclose the high-strength fiber in a weight proportion of 10% by mass or less to the total weight of the flame-retardant thermoplastic resin composition, modified Yamada et al further discloses that additives, including carbon fiber can be added to the thermoplastic resin composition in an amount such that the desired effect of the composition of the invention is not sacrificed [0058, lines 1-4].

It is well known in the art that carbon fiber when added to a thermoplastic resin composition imparts strength to the thermoplastic composition, however, it also affects the surface smoothness of the thermoplastic resin composition as evidenced by Fujihana et al (col.3, lines 22-25).

The weight proportion by mass of the carbon fiber (high-strength fiber) to the total weight of the flame-retardant thermoplastic composition is not considered to confer patentability to the claims; as the surface smoothness of the flame-retardant thermoplastic composition is a variable that can be modified, among others, by adjusting said the weight proportion by mass of the carbon fiber (high-strength fiber) in the flame-retardant thermoplastic composition, with said surface smoothness decreasing as the weight proportion by mass of the carbon fiber (high-strength fiber) increases, the precise weight proportion by mass of the carbon fiber (high-strength fiber) would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the claimed weight proportion by mass of the carbon fiber(high- strength fiber) cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the weight proportion by mass of the carbon fiber (high-strength fiber) in the flame- retardant thermoplastic composition of modified Yamada et al to obtain the desired strength and surface smoothness of the flame retardant thermoplastic resin composition (In re Boesch, 617 F.2d. 272,205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the

optimum or workable ranges involves only routine skill in the art. (In re Aller, 105 USPQ 223).

6. **Claim 20** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Yamada et al (JP 2003-192925, see US 2005/0143502 for English Language equivalent)** in view of **Honda et al (WO/2002/090440, see US 2004/0143068 for English Language equivalent)** as applied to claim 6 above, in further view of **Fujihana et al (WO 01/79354, see US 7,192,538 for English Language equivalent).**

Regarding **claim 20**, modified Yamada et al discloses all the claim limitations as set forth above and further discloses the flame-retardant thermoplastic resin, further comprising a high-strength fiber (F) [see carbon fiber, 0059, line 2].

Though modified Yamada et al does not disclose the high-strength fiber in a weight proportion of 10% by mass or less to the total weight of the flame-retardant thermoplastic resin composition, modified Yamada et al further discloses that additives, including carbon fiber can be added to the thermoplastic resin composition in an amount such that the desired effect of the composition of the invention is not sacrificed [0058, lines 1-4].

It is well known in the art that carbon fiber when added to a thermoplastic resin composition imparts strength to the thermoplastic composition, however, it also affects the surface smoothness of the thermoplastic resin composition as evidenced by Fujihana et al (col.3, lines 22-25).

The weight proportion by mass of the carbon fiber (high-strength fiber) to the total weight of the flame-retardant thermoplastic composition is not considered to confer patentability to the claims; as the surface smoothness of the flame-retardant thermoplastic composition is a variable that can be modified, among others, by adjusting said the weight proportion by mass of the carbon fiber (high-strength fiber) in the flame-retardant thermoplastic composition, with said surface smoothness decreasing as the weight proportion by mass of the carbon fiber (high-strength fiber) increases, the precise weight proportion by mass of the carbon fiber (high-strength fiber) would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the claimed weight proportion by mass of the carbon fiber(high- strength fiber) cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the weight proportion by mass of the carbon fiber (high-strength fiber) in the flame- retardant thermoplastic composition of modified Yamada et al to obtain the desired strength and surface smoothness of the flame retardant thermoplastic resin composition (In re Boesch, 617 F.2d. 272,205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (In re Aller, 105 USPQ 223).

Response to Arguments

7. Applicant's arguments filed July 30th, 2008, have been fully considered but they are not persuasive.

Regarding the argument about the alkali metal-based substance, since Yamada teaches the alkali metal-based substance (T-Na_2O and S-Na_2O) present in the aluminum hydroxide as impurity, and further teaches a purity of about 99.5% or more, because impurities in the aluminum hydroxide affect shelf stability, one of ordinary skill in the art would have purified the aluminum hydroxide of Yamada to various extents, including those containing 0.2% or less of the alkali metal based substance based on the desired shelf stability, while keeping in mind the cost of purification.

That Yamada recognizes the lowering of the alkali metal-based substance of the aluminum hydroxide to 0.5% or less for a different reason from that of the applicant, is an unacceptable argument, because it has been established that it is not necessary that the prior art suggest a combination to achieve the same advantage or result discovered by applicant.

Regarding the results of the metal hydrates of Table 1 in conjunction with Figure 1, the fact that the total flaming combustion time increases with an increase in the concentration of alkali metal-based substance is not unexpected, because it is known in the art that sodium oxide supports combustion of other material, hence it would have been expected that the total flaming combustion time of the resin composition increases with an increase in the concentration of sodium oxide present in the composition.

Regarding the results of the metal hydrates of Table 1 in conjuction with Figure 2, the fact that the number average molecular weight of the resin is higher when the amount of the alkali metal based substance is less than 0.2% is not unexpected as it is known in the art that sodium oxide is a corrosive substance, as evidenced by Hinshaw et al (col.2, lines 28-31); hence, the higher the quantity of sodium oxide in the resin composition, the higher the propensity of the resin being corroded and the lower will be the average molecular weight of the resin with increasing degree of corrosion.
In conclusion, the Table 1 of the instant application in conjunciton with Figures 1 and 2 fails to show unexpected result as argued by the applicant.

Regarding the argument about bisphenol A, when considering the flame retardant property of a compound, other factors, including the interaction between the compound and other components of the composition into which the compound is incorporated should be taken into consideration. Moreover, one of ordinary skill in the art would have adjusted the amount of the bisphenol A of Yamada, in order to acheive the desired flame retardancy by routine experimentation.

Regarding the argument about the nucleating agent, the instant claims are not limited to the nucleating agents in the specification; moreover, in light of the instant specification, Yamada teaches other substances that meet the nucleating agents disclosed in the instant specification, these substances include several of the reinforcement taught by Yamada, such as calcium carbonate and alumina [0059].

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to OLATUNDE S. OJURONGBE whose telephone number is (571)270-3876. The examiner can normally be reached on Monday-Thursday, 7.15am-4.45pm, EST time, Alt Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571)272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

O.S.O.

/Margaret G. Moore/
Primary Examiner, Art Unit 1796
10/25/08